

Release notes for ENDF/B Development n-008_O_018
evaluation

ENDF
B-VII.dev

April 26, 2017

- **fizcon** Warnings:

1. For continuum reactions, specifying outgoing distributions in the Lab frame makes it easier for everyone downstream
MAT= 831, MF= 4, MT= 16 (1): Use Lab Frame

```
WARNING(S)      IN MAT= 831, MF= 4, MT= 16
CONTINUUM REACTION RECOMMENDS LCT=1
```

2. For continuum reactions, specifying outgoing distributions in the Lab frame makes it easier for everyone downstream
MAT= 831, MF= 4, MT= 17 (1): Use Lab Frame

```
WARNING(S)      IN MAT= 831, MF= 4, MT= 17
CONTINUUM REACTION RECOMMENDS LCT=1
```

3. For continuum reactions, specifying outgoing distributions in the Lab frame makes it easier for everyone downstream
MAT= 831, MF= 4, MT= 22 (1): Use Lab Frame

```
WARNING(S)      IN MAT= 831, MF= 4, MT= 22
CONTINUUM REACTION RECOMMENDS LCT=1
```

4. For continuum reactions, specifying outgoing distributions in the Lab frame makes it easier for everyone downstream
MAT= 831, MF= 4, MT= 28 (1): Use Lab Frame

```
WARNING(S)      IN MAT= 831, MF= 4, MT= 28
CONTINUUM REACTION RECOMMENDS LCT=1
```

5. For continuum reactions, specifying outgoing distributions in the Lab frame makes it easier for everyone downstream
MAT= 831, MF= 4, MT= 33 (1): Use Lab Frame

```
WARNING(S)      IN MAT= 831, MF= 4, MT= 33
CONTINUUM REACTION RECOMMENDS LCT=1
```

6. For continuum reactions, specifying outgoing distributions in the Lab frame makes it easier for everyone downstream
MAT= 831, MF= 4, MT= 91 (1): Use Lab Frame

```
WARNING(S)      IN MAT= 831, MF= 4, MT= 91
CONTINUUM REACTION RECOMMENDS LCT=1
```

- **recent** Warnings:

1. Competative widths aren't all zero like they're supposed to be
0: LRX=0

```
Calculate Cross Sections from Resonance Parameters (RECENT 2015-1)
=====
Retrieval Criteria----- MAT
File 2 Minimum Cross Section- 1.0000E-10 (Standard Option)
Reactions with No Background- Output (Resonance Contribution)
... [200 more lines]
```

- fudge-4.0 Warnings:

1. Missing a channel with a particular angular momenta combination
resonances / resolved (Error # 1): missingResonanceChannel

```
WARNING: Missing a channel with angular momenta combination L = 0, J = 1.5 and S = 1.5 for "capture"
WARNING: Missing a channel with angular momenta combination L = 1, J = 0.5 and S = 1.5 for "capture"
WARNING: Missing a channel with angular momenta combination L = 1, J = 1.5 and S = 1.5 for "capture"
WARNING: Missing a channel with angular momenta combination L = 1, J = 2.5 and S = 1.5 for "capture"
... plus 9 more instances of this message
```

2. Cross section does not match sum of linked reaction cross sections
crossSectionSum label 0: total (Error # 0): CS Sum.

```
WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.13%
```

- fudge-4.0 Errors:

1. The spin statistical weights are off, indicating missing channels
resonances / resolved / MultiLevel_BreitWigner (Error # 0): badSpinStatisticalWeights

```
WARNING: The spin statcal weights for L=3 sums to 4.0, but should sum to 7.0. You have too few channels for re
```

2. Calculated and tabulated Q values disagree.
reaction label 2: n[multiplicity:'2'] + O17 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -8081204.379528046 eV vs -8.0421e6 eV!
```

3. Calculated and tabulated Q values disagree.
reaction label 3: n[multiplicity:'3'] + O16 / Cross section: (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated thresholds disagree: 12867843.45316484 eV vs 1.2856e7 eV!
WARNING: Calculated and tabulated Q-values disagree: -12224333.6889782 eV vs -1.2185e7 eV!
```

4. Calculated and tabulated Q values disagree.
reaction label 4: n + H1 + N17 / Cross section: (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated thresholds disagree: 16830104.31785704 eV vs 1.6815e7 eV!
WARNING: Calculated and tabulated Q-values disagree: -15979039.04427338 eV vs -1.5937e7 eV!
```

5. Energy range of data set does not match cross section range
reaction label 4: n + H1 + N17 / Product: n / Distribution: / uncorrelated - energy - evaporation: (Error # 0): Domain mismatch (a)

```
WARNING: Domain doesn't match the cross section domain: (16816000.0 -> 20000000.0) vs (16815000.0 -> 20000000.0)
```

6. Calculated and tabulated Q values disagree.
reaction label 5: n + H3 + N15 / Cross section: (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated thresholds disagree: 16716052.03283925 eV vs 1.6701e7 eV!
WARNING: Calculated and tabulated Q-values disagree: -15869945.0976162 eV vs -1.5829e7 eV!
```

7. Calculated and tabulated Q values disagree.
reaction label 6: O19 + gamma (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: 3917747.21043396 eV vs 3.9559e6 eV!
```

8. Calculated and tabulated Q values disagree.
reaction label 7: n + He4 + C14 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -6263509.354557037 eV vs -6.226e6 eV!

9. Calculated and tabulated Q values disagree.
reaction label 8: H1 + N18.s / Cross section: (Error # 0): Q mismatch

WARNING: Calculated and tabulated thresholds disagree: 14013646.50172322 eV vs 1.4001e7 eV!

WARNING: Calculated and tabulated Q-values disagree: -13150820.29410172 eV vs -1.327e7 eV!

10. Calculated and tabulated Q values disagree.
reaction label 9: H2 + N17.s / Cross section: (Error # 0): Q mismatch

WARNING: Calculated and tabulated thresholds disagree: 14481472.07823139 eV vs 1.4468e7 eV!

WARNING: Calculated and tabulated Q-values disagree: -13754472.94333839 eV vs -1.3713e7 eV!

11. Calculated and tabulated Q values disagree.
reaction label 10: H3 + N16.s / Cross section: (Error # 0): Q mismatch

WARNING: Calculated and tabulated thresholds disagree: 14085457.19969738 eV vs 1.4073e7 eV!

WARNING: Calculated and tabulated Q-values disagree: -13380847.71893692 eV vs -1.3338e7 eV!

12. Calculated and tabulated Q values disagree.
reaction label 11: He4 + C15.s (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -5045442.617145538 eV vs -5.008e6 eV!

- njoy2012 Warnings:

1. Evaluation has no unresolved resonance parameters given
unresr...calculation of unresolved resonance cross sections (0): No URR

---message from unresr---mat 831 has no unresolved parameters
copy as is to nout

2. Evaluation has no unresolved resonance parameters given
purrr...probabalistic unresolved calculation (0): No URR

---message from purrr---mat 831 has no unresolved parameters
copy as is to nout

3. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
grouprr...compute self-shielded group-averaged cross-sections (0): GROUPR/conver (0)

---message from conver---cannot do complete particle production for mt= 16
only mf4/mf5 provided

4. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
grouprr...compute self-shielded group-averaged cross-sections (1): GROUPR/conver (0)

- message from conver---cannot do complete particle production for mt= 17
only mf4/mf5 provided
5. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
group...compute self-shielded group-averaged cross-sections (2): GROUPR/conver (0)
- message from conver---cannot do complete particle production for mt= 22
only mf4/mf5 provided
6. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
group...compute self-shielded group-averaged cross-sections (3): GROUPR/conver (0)
- message from conver---cannot do complete particle production for mt= 28
only mf4/mf5 provided
7. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
group...compute self-shielded group-averaged cross-sections (4): GROUPR/conver (0)
- message from conver---cannot do complete particle production for mt= 33
only mf4/mf5 provided
8. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
group...compute self-shielded group-averaged cross-sections (5): GROUPR/conver (0)
- message from conver---cannot do complete particle production for mt= 91
only mf4/mf5 provided
9. For continuum reactions, specifying outgoing distributions in the Lab frame makes it easier for everyone downstream
check...ace consistency check (0): Use Lab Frame
- check angular distributions for correct reference frame
consis: should be lab: (n,2n)
10. For continuum reactions, specifying outgoing distributions in the Lab frame makes it easier for everyone downstream
check...ace consistency check (1): Use Lab Frame
- check angular distributions for correct reference frame
consis: should be lab: (n,3n)
11. For continuum reactions, specifying outgoing distributions in the Lab frame makes it easier for everyone downstream
check...ace consistency check (2): Use Lab Frame

check angular distributions for correct reference frame
consis: should be lab: (n,n*)a

12. For continuum reactions, specifying outgoing distributions in the Lab frame makes it easier for everyone downstream
check...ace consistency check (3): Use Lab Frame

check angular distributions for correct reference frame
consis: should be lab: (n,n*)p

13. For continuum reactions, specifying outgoing distributions in the Lab frame makes it easier for everyone downstream
check...ace consistency check (4): Use Lab Frame

check angular distributions for correct reference frame
consis: should be lab: (n,n*)t

14. For continuum reactions, specifying outgoing distributions in the Lab frame makes it easier for everyone downstream
check...ace consistency check (5): Use Lab Frame

check angular distributions for correct reference frame
consis: should be lab: (n,n*c)